LOOSE MINUTE

D/SSC/SM611/820/2

13 March 1989

SM505 - Mr Chandler

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UNDERWATER STORAGE OF DECOMMISSIONED NUCLEAR SUBMARINES

Reference: Draft Feasibility Study D/SSC/SM505/867/7/22 February 1989

1. General

SM611 main concern with the proposals for underwater storage is that there must be profound uncertainty as to the condition of the submarine when it is eventually recovered. A different level of preparation will be necessary if the submarine is to be more or less "as submerged" when it is recovered, relative to that which would be required if the submarine can be acceptably recovered with extensive corrosion to hull and systems. From the point of view of reactor system dismantling, it is worth recording that BNFL experience with old derelect facilities at Sellafield is that corrosion hampers dismantling and disposal by creating serious problems with loose partially adherent surface material. The public relations aspect of recovering a rusty hulk should also be borne in mind.

2. The book by a Dr Ballard on investigating the TITANIC wreck records that there are corrosion mechanisms taking place at the ocean floor, in the absence of air, driven by bacterial action. Before committing ourselves to sea-bed storage, we must obtain the fullest possible information on all these mechanisms of degradation for steel.

3. I feel that the proposals to fill the submarine with water are objectionable: they must surely result in corrosion and filth throughout the submarine interior and the pressure hull will be attacked by corrosion mechanisms from both sides simultaneously. I feel that more serious consideration should be given to leaving the submarine interior dry, possibly with a nitrogen purge. This would leave the submarine with a considerable differential pressure across the pressure hull, and were there to be any tampering, the inrush of water would be clearly detectable by any intruder monitoring devices that may have been planted in or near the submarine. If this policy is adopted I would expect to see all pressure hull penetrations seal welded because reliance cannot be placed on valve watertightness for the timescales expected.

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